

Appl. No. 09/760,405

Amdt. dated 9/30/04

Reply to Office action of 6/30/04.

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A data-processing device for processing in parallel a plurality of independent processes, comprising:

a program memory having stored therein at least one compiled program with a multiplicity N of independent processes, the compiled program including information on parallelism and including a multiplicity of bundles with a plurality of instructions of a process, the instructions of a bundle being executable in parallel;

a branching control unit connected to and addressing said program memory;

a register for storing flags and data which are switched in dependence on a process being executed; and

a program flow control unit connected to said branching control unit, said program flow control unit controlling a

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fetching of bundles to be processed in parallel from said program memory, controlling said branching control unit, and controlling an output of instructions to be processed in parallel in dependence on information contained in the instructions and included in a compiling time of the program;

a number N of instruction buffers being connected in parallel downstream of said program memory for storing instructions read out from said program memory, an instruction bundle being read into one of said instruction buffers and a second instruction bundle associated with a different process being read into another one of said instruction buffers; and

an instruction output selector being connected to and controlled by said process flow control unit causing said instruction output selector to read out instructions from said instruction buffers and output N instructions in parallel, said instruction output selector having a multiplexer logic and selecting one of either one instruction from a first instruction buffer and one instruction from a second instruction buffer, or two instructions from one of said first and second instruction buffers.

Claims 2 and 3 (canceled)

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Claim 4 (original): The data-processing device according to claim 1, which comprises N instruction decoders for decoding the instructions being output.

Claim 5 (original): The data-processing device according to claim 1, which comprises at least two instruction-execution units for outputting the N decoded instructions.

Claim 6 (original): The data-processing device according to claim 5, which comprises a data memory and at least two buses connecting said N instruction-execution units to said data memory.

Claim 7 (previously presented): The data-processing device according to claim 1, which comprises a plurality of instruction-execution units connected to said program flow control unit and configured to execute the instructions of one or more bundles in parallel.

Claim 8 (original): The data-processing device according to claim 1, wherein said branching control unit is configured to output an address pointer for addressing a bundle.

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Claim 9 (original): The data-processing device according to claim 1, wherein the branching control unit comprises:

a first multiplexer and a second multiplexer;

an adder; and

N program counters; and

wherein said program flow control unit feeds a number of instructions in a bundle to said adder and said adder adds an address pointer and the number of instructions;

wherein said program flow control unit feeds addresses for program jumps or function calls and a process number to said first multiplexer;

said first multiplexer writing either the output signal of said adder or the addresses for program jumps or function calls into said program counter assigned to the active process; and

a content of said program counter assigned to the currently active process is output as a new address pointer via said,

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second multiplexer which is controlled using the process number supplied.

Claim 10 (original): The data-processing device according to claim 1, wherein said program flow control unit is configured to receive via a subbus of an output bus of said program memory at least one of the following:

at least one bit for indicating the parallel execution of instructions;

at least one bit for indicating the length of the following instruction bundle;

the indication of one or more NOPs in the instruction bundles;

a priority of the processes of the instructions.

Claim 11 (currently amended): The data-processing device according to claim 1, wherein a process is called with a run instruction by assigning a process number, a priority and a memory address of a starting point of the process in the program memory.

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Claim 12 (original): The data-processing device according to claim 1, wherein said data-processing device is a network processor for processing layer 1 to 7 of protocol stacks in applications including LAN, ATM switches, IP routers, and frame relays based on a system selected from the group consisting of DSL, Ethernet, and cable modems.